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*NEW JERSEY DEPARTMENT OF AGRICULTURE*

# FOREST PEST REPORTER

**Division of Plant Industry PO Box 330 Trenton, NJ 08625-0330 609-292-5440**

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## GYPSY MOTH EGG MASS SURVEY INDICATES PROBABLE INCREASE IN ELIGIBLE ACREAGE

Division of Plant Industry staff have been conducting gypsy moth egg mass surveys statewide since September to determine which municipalities have forested residential areas with high enough infestations of the gypsy moth to warrant aerial spraying with *B.t* next spring. Eligible sites will have more than 500 egg masses per acre. Surveys have been completed in 49 municipalities to date. So far, proposed treatment areas include 10,643 acres in 23 towns (seeTable1). Last summer 132,762 acres were defoliated, 100 times the previous year's acreage. Repeated defoliations by the gypsy moth caterpillars can result in substantial tree loss, especially after past years of drought.

While participation in the gypsy moth survey and control program is voluntary, last year's increase has many towns very concerned about protecting their valuable trees from continued damage. Consequently, many municipalities have expressed an interest in participating in NJDA's gypsy moth program.

Egg mass surveys should be completed by the end of December. NJDA staff are planning regional meetings on January 23 and 24 where municipal officials will hear about the legal, fiscal and labor requirements for participation in the 2001 aerial spray program.

## HIGHLIGHTS OF THE ANNUAL NATIONAL GYPSY MOTH REVIEW MEETING

The annual four-day gypsy moth conference, held this fall in Norfolk, VA, covered not only the gypsy moth problem but other invasive pest species as well, including Asian long-horned beetle, brown spruce long-horned beetle and hemlock woolly adelgid.

**Gypsy Moth Research Update**

After many years of effort, the "Slow the Spread Project" to limit the spread of gypsy moth received its first year of full funding -- $10.67 million. A special non-profit Slow the Spread Foundation has been formed to manage the project that extends from Wisconsin to North Carolina. The spread of gypsy moth has been reduced to about 4.5 miles per year.

Researchers from The University of Massachusetts reported that the Japanese gypsy moth fungus disease, *Entomophaga maimaiga*, could remain viable in soil for up to 10 years. It is not density-dependent and moist mesic sites enhance its virility. Soil and air-borne spores explain its rapid spread through the population. This research explains why the gypsy moth fungus was found still active in northwestern New Jersey last summer after many years of very low gypsy moth population levels.

On the other hand, the gypsy moth virus tends to clump itself on the leaf, where first instar caterpillars die, and therefore, may not be eaten by other caterpillars. Therefore, for virus sprays to be successful, it must be deposited in fine droplets which cover the entire leaf.

Studies at West Virginia University showed a reduction in non-target Lepidoptera in *B.t.*-treated forests but there was no significant effect on summer-feeding insects. Other studies in British Columbia show that bird populations are not impacted by the *B.t.* treatments. This is important in New Jersey where only *B.t.* is used and there had been concern about possible adverse effects on bird populations.

**Exotic Brown Spruce Long-horned Beetle Found in Halifax, Nova Scotia**

The brown spruce long-horned beetle, *Tetropium fuscum*, was first observed in Halifax, Nova Scotia, in July of 1988 on red spruce but not identified as an exotic long-horned beetle until September 1999. This past spring, the Canadian Food Inspection Agency (CFIA) quarantined the park where the infestation was found, a site adjacent to a seaport that receives international commerce. It is estimated that the infestation in the park has been present for more than ten years. There are approximately 40,000 spruce trees in the park and about 30,000 trees in residential areas that have to be inspected. Plans are to cut and remove any infested tree. CFIA began cutting and burning the beetle-infested trees in the park, but was stopped by the courts after about 500 trees were removed. Removal of beetle-infested trees is continuing on private lands in residential areas surrounding the park.

**Asian Long-horned Beetle Status**

In Chicago, IL, 1,426 trees in an area extending over 16 square miles are now infested with the Asian long-horned beetle (ALB). Chicago officials are attempting to treat about

11,440 susceptible ALB with soil and tree injections, as a preventative measure, an effort that is meeting considerable public opposition.

In New York City, the area of ALB infestation is approximately 102 square miles. It is estimated that 310,000 trees need to be inspected for ALB and up to 178 square miles of infestation by ALB will be under quarantine in the near future.

To date, no natural pheromones of the ALB have been found. Studies indicate that a long-distance pheromone trap may not work against the ALB. It appears that physical contact between adult beetles may result in production of a pheromone that initiates the mating process..

Dispersal studies of ALB in China show most beetles fly about 825 feet from host trees and almost 98% of the beetles are found within 1,736 feet of infested trees. However, some beetles may fly as far as 4,526 feet from host. The adults also tend to disperse more in heavy populations. ALB tends to lay more eggs on Norway maples than on willow trees because adult female beetles must chew down to the cambium layer to lay eggs, a process that takes much longer on a thick-barked willow tree. ALB adults tend to deposit more eggs higher up in the tree where the bark is thinner and the females can easily chew to the cambium. It is also difficult to locate egg sites on a willow tree and more thorough exam is needed if an infestation is to be located for eradication purposes. These findings support the need for tree climbers to get more accurate assessment of ALB infestations.

**Hemlock Woolly Adelgid Update in Maine and New Hampshire**

In August 1999 the hemlock woolly adelgid (HWA) was found on six trees in imported nursery stock in southern Maine. A media request for residents to look for HWA in the State resulted in over 400 calls and identification of 10 more infestations. State officials attempted treatment but HWA was still found on trees. As a result, officials decided in May 2000 to close the border to any hemlocks from any HWA-infested county in any state.

In New Hampshire officials surveyed the hemlocks for the possible spread by wind or migrating birds but found no infestations of HWA. Another media campaign helped officials locate ten seedlings infested with HWA in the Portsmouth area. A four-mile radius around the site was surveyed and 40 more large hemlock trees were found to be infested. New Hampshire has attempted to control this pest using soil injections and horticultural oils. However, officials reserve the right to cut and destroy trees if these measures do not work.

Researchers reported that there is no survival of HWA when exposed to temperatures between 31 to 40 degrees below zero Fahrenheit. Only 0.5% of HWA survive when temperatures are below minus 22 Fahrenheit for 24 hours. NJDA inspection staff has also witnessed dramatic reductions in HWA populations during sudden cold snaps in New Jersey.

| TABLE 1. - PROPOSED GYPSY MOTH TREATMENT AREAS AS OF DECEMBER 12, 2000 | | | | | |
|---|---|---|---|---|---|
| County (acres proposed)<br>Municipality | Positive Egg Mass Sites | Negative Egg Mass Sites | Total Sites Surveyed | Number Proposed Spray Blocks | Proposed Treatment Acres |
| Atlantic (0) | | | | | |
| Hamilton Township | 0 | 200 | 200 | 0 | 0 |
| | | | | | |
| Burlington (1,081) | | | | | |
| Bass River Township | 5 | 135 | 140 | 1 | 98 |
| Medford Township | 36 | 300 | 336 | 4 | 347 |
| Pemberton Township | 0 | 803 | 803 | 0 | 0 |
| Shamong Township | 22 | 150 | 172 | 2 | 284 |
| Southampton Twp. | 12 | 442 | 454 | 2 | 321 |
| Westampton Township | 0 | 150 | 150 | 0 | 0 |
| Medford Lakes Borough | 5 | 50 | 55 | 1 | 31 |
| | | | | | |
| Camden (0) | | | | | |
| Pine Hill Borough | 1 | 95 | 96 | 0 | 0 |
| Waterford Township | 0 | 244 | 244 | 0 | 0 |
| | | | | | |
| Hunterdon (809) | | | | | |
| Alexandria Township | 2 | 188 | 190 | 1 | 160 |
| Bethlehem Township | 18 | 132 | 150 | 2 | 309 |
| Clinton Township | 0 | 236 | 236 | 0 | 0 |
| Holland Township | 21 | 160 | 181 | 2 | 256 |
| Lebanon Township | 0 | 211 | 0 | 0 | 0 |
| Raritan Township | 0 | 593 | 593 | 0 | 0 |
| Readington Township | 0 | 198 | 198 | 0 | 0 |
| Union Township | 7 | 130 | 137 | 1 | 84 |
| Franklin Township | 0 | 140 | 140 | 0 | 0 |
| | | | | | |
| Morris ( 3,215) | | | | | |
| Jefferson Township | 1 | 274 | 275 | 0 | 0 |
| Kinnelon Borough | 18 | 279 | 297 | 3 | 2,415 |
| Montville Township | 0 | 186 | 186 | 0 | 0 |
| Rockaway Township | 30 | 169 | 189 | 5 | 800 |
| Mountain Lakes Bor. | 0 | 122 | 122 | 0 | 0 |
| Mount Olive Twp. | 0 | 441 | 441 | 0 | 0 |
| Butler Borough | 0 | 154 | 154 | 0 | 0 |
| Boonton Township | 1 | 191 | 192 | 0 | 0 |
| Mt. Arlington Bor. | 0 | 90 | 90 | 0 | 0 |
| | | | | | |
| Passaic (4,759) | | | | | |
| Bloomingdale Bor. | 16 | 180 | 196 | 2 | 260 |
| Hawthorne Borough | 1 | 175 | 176 | 0 | 0 |
| Pompton Lakes Bor. | 0 | 131 | 131 | 0 | 0 |
| Ringwood Borough | 63 | 233 | 296 | 1 | 2,082 |
| West Milford Twp. | 27 | 565 | 592 | 4 | 2,112 |

| | | | | | |
|---|---|---|---|---|---|
| Wanaque Borough | 14 | 163 | 177 | 2 | 305 |
| | | | | | |
| Salem (175) | | | | | |
| Carneys Point Twp. | 10 | 120 | 130 | 3 | 102 |
| Oldmans Township | 6 | 100 | 106 | 2 | 25 |
| Pittsgrove Township | 1 | 276 | 277 | 1 | 25 |
| Upper Pittsgrove Twp. | 2 | 153 | 155 | 1 | 23 |
| | | | | | |
| Sussex (604) | | | | | |
| Byram Township | 4 | 335 | 339 | 1 | 78 |
| Montague Township | 0 | 200 | 200 | 0 | 0 |
| Sandyston Township | 2 | 201 | 203 | 0 | 0 |
| Sparta Township | 7 | 409 | 416 | 2 | 259 |
| Stillwater Township | 3 | 244 | 247 | 1 | 62 |
| Fredon Township | 2 | 187 | 189 | 1 | 205 |
| Ogdensburg Borough | 0 | 80 | 80 | 0 | 0 |
| | | | | | |
| Warren (0) | | | | | |
| Allamuchy Township | 0 | 102 | 102 | 0 | 0 |
| Franklin Township | 0 | 100 | 100 | 0 | 0 |
| Hardwick Township | 0 | 120 | 120 | 0 | 0 |
| Lopatcong Township | 0 | 73 | 73 | 0 | 0 |
| No. Towns Surveyed = 49 | | | | | 10,643 |

**Prepared by John D. Kegg, Chief**
**Bureau of Plant Pest and Disease Control**
**e-mail john.kegg@ag.state.nj.us**